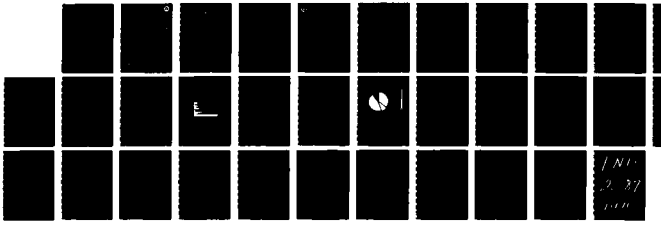
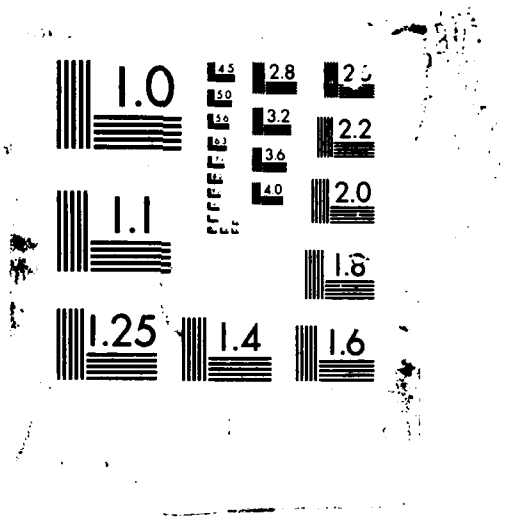
AD-A175 900 PRELIMINARY CLASSIFICATION OF ARMY AND NAVY ENTRY-LEVEL 1/1
OCCUPATIONS BY TH (U) NAVY PERSONNEL RESEARCH AND
DEVELOPMENT CENTER SAN DIEGO CA J L HOLLAND ET AL
UNCLASSIFIED DEC 86 NPRDC-TN-87-5 MIPR-13ARI-8311 F/G 5/9 NL




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.8
3.2
3.6
4.0

Navy Personnel Research and Development Center

San Diego, CA 92152-6800 NPRDC TN 87-5 December 1986

PRELIMINARY CLASSIFICATION OF ARMY AND NAVY ENTRY-LEVEL OCCUPATIONS BY THE HOLLAND CODING SYSTEM

DISCLAIMER NOTICE

THIS DOCUMENT IS BEST QUALITY PRACTICABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

NPRDC TN 87-5 December 1986

PRELIMINARY CLASSIFICATION OF ARMY AND NAVY ENTRY-LEVEL OCCUPATIONS BY THE HOLLAND CODING SYSTEM

John L. Holland
Johns Hopkins University
Baltimore, Maryland 21212

and

Herbert George Baker
Navy Personnel Research and Development Center
San Diego, California 92152-6800

Reviewed by
John Pass

Released by
Martin F. Wiskoff
Director
Manpower and Personnel Laboratory

Navy Personnel Research and Development Center
San Diego, California 92152-6800

DEPARTMENT OF THE NAVY
NAVY PERSONNEL RESEARCH AND DEVELOPMENT CENTER
SAN DIEGO, CALIFORNIA 92152-6800

8 December 1986

From: Commanding Officer, Navy Personnel Research and Development Center

Subj: **PRELIMINARY CLASSIFICATION OF ARMY AND NAVY ENTRY-LEVEL OCCUPATIONS BY THE HOLLAND CODING SYSTEM**

Encl: (1) NPRDC TN 87-5

1. The research reported here is directed to the development of computerized vocational guidance for possible use in military recruiting. It was conducted in support of the Army's JOIN (Joint Optical Information Network) system as a part of ongoing efforts to develop its computerized adaptive screening, assignment prediction, and management support capabilities.

2. Funding was provided through a letter of agreement between the Navy Personnel Research and Development Center and the Army Research Institute for the Behavioral and Social Sciences. Additional funding for the coding of Navy occupations was provided by the Military Occupational Information System Project.

3. The work reported here is expected to benefit the recruiting branches of the Army and Navy and the research community.

Martin F. Wiskoff

MARTIN F. WISKOFF
By direction

Distribution:
Director, Defense Activity for Non-Trad Education Support, Pensacola, FL
Commander, Navy Recruiting Command (Code 20)
Commandant of the Marine Corps (MPI-20)
Commander, U.S. Army Research Institute for the Behavioral and Social Sciences, Alexandria (PERI-POT-I) (PERI-SZ), (PERI-RZ)
Defense Technical Information Center (DTIC) (2)

A-1

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE

AD-A175 900

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) NPRDC TN 87-5	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Navy Personnel Research and Development Center 6b. OFFICE SYMBOL (If applicable) Code 62	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code) San Diego, CA 92152-6800	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING / SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral & Social Sci. 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code) 5800 Eisenhower Ave. Alexandria, VA 22333	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO: MIPR PROJECT NO: 13ARI TASK NO: 8311 WORK UNIT ACCESSION NO:

11. TITLE (Include Security Classification)
PRELIMINARY CLASSIFICATION OF ARMY AND NAVY ENTRY-LEVEL OCCUPATIONS BY THE HOLLAND CODING SYSTEM

12. PERSONAL AUTHOR(S)
Holland, J.L., Baker, H.G.

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Interim	FROM FY 84 TO FY 86	1986 December	

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	
05	09		Armed services recruiting, vocational guidance, occupational classification, interservice projects.

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Under a 3-year interlaboratory agreement, NAVPERSRANDCEN pursued several research and development efforts in support of the Army's advanced computerized accessioning system, the Joint Optical Information Network (JOIN). This report details the classification of entry-level Army and Navy jobs by the Holland Coding System.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION	
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL Baker, Herbert George	22b. TELEPHONE (Include Area Code) (619) 225-2408	22c. OFFICE SYMBOL Code 62

DD FORM 1473, 84 MAR — 83 APR edition may be used until exhausted. All other editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

SUMMARY

Problem

A number of research efforts are developing recruiting-compatible vocational guidance (VG) systems. Efficient VG requires the classification of both occupational preferences and occupations according to a common scheme so that matching of applicant and occupational characteristics can be accomplished systematically. This is particularly important in VG systems for military enlisted recruiting because the job applicants tend to be career-naive and no professional guidance counseling is available.

Objective

The objective of this effort was to classify entry-level Navy ratings and Army military occupational specialities (MOS) by the system most widely used for VG counseling, the Holland coding system.

1473

Approach

Information on Army and Navy occupations from official sources was related to job descriptions in the Dictionary of Occupational Titles (DOT; see U.S. Department of Labor, 1977) and the Dictionary of Holland Occupational Codes (DOHC; see Gottfredson, Holland, & Ogawa, 1982) either directly or through expert judgment.

Results

Preliminary Holland codes were assigned to all Army occupations and to entry-level Navy occupations. Most Army and Navy entry-level jobs fell into the Realistic category; Investigative jobs were second most common overall. The distribution of all Army enlisted MOS and Navy entry-level ratings within the Holland coding system was also determined.

Conclusions

It is theoretically possible to subsume military occupations within the Holland coding system. Application of this widely used scheme should facilitate the elicitation of occupational preferences, focus job exploration by recruits, and enhance the quality of VG during recruiting. The Holland occupational classification system would be an efficient way to organize occupational information in a prototype computerized VG system for military recruiting.

In spite of widespread acceptance of the Holland system itself, the specific job classifications reported here would need review by service-specific subject matter experts and comparisons to the occupational codes derived directly from interest inventories. After a period of use, the utility of Holland classifications for military occupational exploration and vocational preference elicitation could be evaluated.

CONTENTS

LIST OF FIGURES

INTRODUCTION

Problem

Although there are some significant differences in applicant characteristics, legal commitments, and constraints on freedom (Wienberger, 1982), in general, the factors affecting vocational choice and occupational placement within and outside the services are similar (Clark, 1955). In both cases, personal abilities, interests, and preferences must be juxtaposed with institutional factors such as job openings, minimum standards, and employment incentives (Sands, 1980).

Evidence supporting the use of vocational guidance (VG) procedures in person-job matching is pervasive in the scientific literature. Furthermore, there is need for preenlistment vocational counseling or guidance based on both applicant characteristics and the nature of military work (Baker, 1983a; 1985). Progress to date has produced prototype VG systems designed to assist both the recruiter and applicant that have been demonstrated by the armed services research laboratories (Baker, 1983b, 1983c; Baker, Rafacz, & Sands, 1983; Ellis & Baker, 1986; Sands, 1981; Yellen & Foley, 1978).

A number of occupational classification systems are currently used by the Armed Forces, but, unfortunately, these systems group occupations according to administrative or logistical convenience. None was designed to facilitate VG. In addition, military occupational classifications do not share common terms with occupational preference tests or applicant vocabulary, making the task of matching applicant preferences to occupational descriptions highly difficult.

Various ways to measure vocational interests, values, and preferences have been investigated for potential contributions to the selection, classification, and assignment of military job applicants, with the goal of increasing job satisfaction, productivity, and retention (Alley, 1978; Barrett & Dambrot, 1975; Bowers, 1975; Clark, 1955; Claudy & Caylor, 1981; Edwards, 1978; Gould, 1978; Hoehn, Wilson, & Richards, 1872; Thomas, 1977). However, interests currently go unmeasured during the recruiting process, and no instrument has been developed that permits an easy link of interests to occupations by recruiters, who are not professional guidance counselors.

VG systems invariably include some form of vocational preference elicitation. However, the use of preferences in a guidance system logically requires the classification of both preferences and jobs according to a common scheme. This is particularly important in military recruiting, where the job applicants tend to be career-naive.

The Holland system would correct that deficiency by classifying both jobs and individuals' vocational interests with common terms.

Objective

The objective of this effort was to classify entry-level Navy ratings and Army military occupational specialties (MOS) according to the Holland (1985a) coding system.

Background

R. B. Forer's (1951) suggestion that vocational interests are essentially expressions of personality stimulated Holland to develop a simple personality test consisting entirely of occupational items. Using this device and other techniques in an extensive series of

studies, Holland developed his theory that people and environments can be generally classified into six types. The Holland system further categorizes people, occupations, or environments by subtypes that allow more precise descriptions. The classification scheme includes six main categories (see Figure 1) corresponding to the six types: RIASEC. Thus:

R Occupations classified as Realistic (or R) tend to involve concrete and practical activity involving machines, tools, or materials.

I Occupations classified as Investigative (or I) tend to involve analytical or intellectual activity aimed at problem solving, trouble shooting, or the creation and use of knowledge.

A Occupations classified as Artistic (or A) generally involve creative work in the arts: music, writing, performance, sculpture, or other relatively unstructured and intellectual endeavors.

S Occupations classified as Social (or S) typically involve working with people in a helpful or facilitative way.

E Occupations classified as Enterprising (or E) tend to be involving working with people in a supervisory or persuasive way, in order to achieve some organizational goal.

C Occupations classified as conventional (or C) typically involve working with things, numbers, or machines in an orderly way to meet the regular and predictable needs of an organization.

Main categories and subcategories might be viewed as requiring different levels of general educational development (GED) if the classification is applied to an occupation or as possessing different levels of GED if the classification is applied to a person.

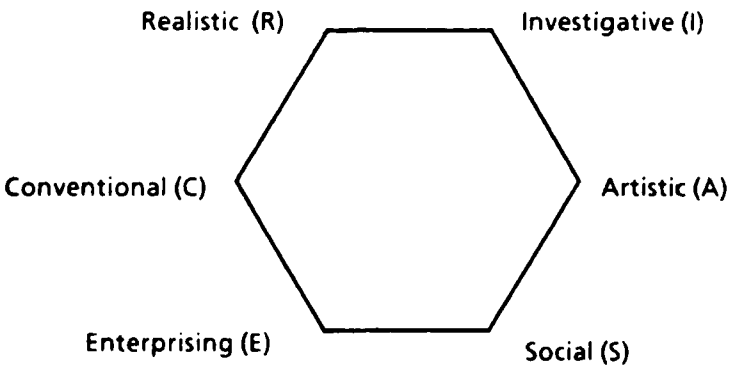


Figure 1. Holland hexagonal classification.

Each main category contains 5 to 16 subcategories, such as, Realistic-Investigative-Artistic (RIA), Realistic-Investigative-Social (RIS), and so on. These are the three-letter Holland codes. The first letter is the most important: It shows the major category into which the occupation or person falls and conveys the most information. The second and third letters, in descending importance, provide supplementary information by showing the categories or types that the person or job next most resembles.

No person or job is a pure type and no other. The number of jobs that might fit a particular person is large. Some people resemble two or three theoretical types to the same degree, and some jobs resemble two or more occupational groups to the same degree. Therefore, describing both people and jobs in terms of their degree of resemblance to several types of groupings is useful.

A variety of types of people are found working successfully within any single occupation, but some types are found more frequently than others (see Holland & Holland, 1977; or Holland, 1979, p. 14). For example, most people working as guidance counselors have Holland preference codes that include S, A, and E, but few have codes of C or R. In short, all occupations tolerate a range of types, but some personality types appear to fit more successfully with an occupation's demands than others. (See Holland, 1985a for a more complete explanation of person-environment fit.)

Because the classification system is an integral part of the Holland theory of vocational choice, the act of classification makes it possible to use the theory to interpret or predict the behavior of persons and the influence of occupations or environments. For example, a person categorized as an RIE might be expected to exhibit the characteristics of the Realistic type most, the Investigative type next, and so on. From another perspective, jobs categorized as RIE should require Realistic activities, competencies, perceptions, and so on. In addition, the average GED level for RIE jobs should indicate the GED required for satisfactory performance.

Occupational classification according to the hexagonal model also provides a method for estimating the "psychological distance" between successive jobs within a career, between two or more vocational preferences, or between individual preference and a specific job. In short, the degree of preference or career change can be estimated. Psychological distance can be defined as dissimilarity of personality types or occupational types that is graphically represented by relative positions within the hexagon. (For a discussion of psychological distance, see Holland, 1985a.) Within this arrangement, proximal occupations are more alike than distant occupations. Thus, career changes such as from social worker (S) to counselor (S) appear to be less important than career changes such as from scientist (I) to business executive (E).

The Holland classification scheme has undergone a number of revisions and tests of usefulness from 1959 to 1982 (Holland, 1985a). In general, the research indicates that the Holland codes organize vocational preferences and occupations according to the theoretical expectations and that the classification can be readily applied to preference and occupational data.

Holland's theory is probably now the most widely used organizing principle for vocational interests in the world. A recent manual (Holland, 1979) noted more than 300 articles, books, chapters, and reviews examining the theory in experimental tests of its

predictions, its value in organizing personal and occupational information, and its practical use. The virtues of the theory are easily summarized:

1. The typology is easy to understand.

2. It has many characteristics of a useful theory--clear definitions, internally consistent structure, broad scope, and formalizations for dealing with personal development and change.

3. It has a broad research support based on studies of children, adolescents, college students, and adults, both men and women, up to 70 years old.

4. The theory is easily applied to practical problems such as the development of vocational assessment devices, the classification and interpretation of personal and environmental data, and the conduct of vocational counseling.

In 1979 the U.S. Department of Labor published its Guide to Occupational Exploration with this acknowledgement:

> In recognition of the extensive research on the Holland model and its widespread use in vocational counseling today, the USES interest areas were arranged according to the Holland categories.

Similarly, the Canadian government's dictionary of Holland codes includes an acknowledgement of the usefulness of the approach (Employment and Immigration, 1973).

The classification scheme is contained in two publications: The Dictionary of Holland Occupational Codes (DHOC; Gottfredson, Holland, & Ogawa, 1982) and The Occupations Finder (Holland, 1978). The DHOC was developed by keying well-established codes in the 1978 Occupations Finder to occupational ratings for each of 12,099 occupations in the Dictionary of Occupational Titles (Department of Labor, 1977). The DOT makes the 12,099 occupational titles of the DOT more accessible to counselors, clients, and researchers who use the Holland classification to find or to organize occupational information. Multiple discriminant analysis was used to develop classificatory functions based on DOT data (44 occupational ratings) to classify 189 occupational titles from the Occupations Finder into six occupational categories (Gottfredson et al., 1982). The agreement between the first letters codes obtained from the 1977 Occupations Finder and the classificatory functions was 87.8 percent in the construction sample and 77.4 percent in the cross-validation sample. Gottfredson et al. (1982) summarized the development and validation of the codes in detail and outlined some applications to research and practice (See Figures 2 and 3 for sample pages of these publications.)

Because the DHOC is based on the ratings of experienced occupational observers, the classification is now tied closely to occupational data. In addition, the DHOC illustrates that the codes based on the older interest inventory data closely approximate codes based on data from job analyses.

Military use. The current effort is a significant step in applying of Holland coding to vocational guidance during enlistment, that is, coding the entry-level occupations. Ultimately, by assigning three-letter Holland codes to both preferences and occupations, it might be feasible to use preferences in the recruiting VG system to find military occupations that are compatible with an applicant's interests. To that end, the Navy contracted with the author of the Holland coding system to establish preliminary classifications for entry-level Army and Navy occupations.

ALPHABETICAL INDEX

Title	Code	Group	Page
DIRECTOR, TECHNICAL	ESA	05.02.04	198
DIRECTOR, TELEVISION	SEA	01.03.01	174
DIRECTOR, TRANSLATION	SEC	11.08.04	175
DIRECTOR, TRANSPORTATION	ESR	11.05.01	188
DIRECTOR, UNEMPLOYMENT INSURANCE	SER	11.05.03	170
DIRECTOR, UTILITY ACCOUNTS	SEC	11.06.03	175
DIRECTOR, VOCATIONAL TRAINING	ESA	11.07.03	198
DIRECTOR, VOLUNTEER SERVICES	SEC	11.07.02	175
DIRECTORY-ASSISTANCE OPERATOR	CER	07.04.06	235
DISASSEMBLER	CRS	06.02.24	212
DISASTER OR DAMAGE CONTROL SPECIALIST	ERS	04.02.02	181
DISBURSEMENT CLERK	CES	07.05.02	237
DISK JOCKEY	SEC	01.03.03	175
DISK-AND-TAPE-MACHINE TENDER	CRE	06.04.05	220
DISPATCHER	SEC	07.04.05	176
DISPATCHER	SEC	07.04.05	176
DISPATCHER	ERS	07.04.05	181
DISPATCHER	ESR	05.09.01	190
DISPATCHER	ESI	05.03.03	196
DISPATCHER CLERK	CSR	07.02.05	229
DISPATCHER, BUS AND TROLLEY	ERS	07.04.05	181
DISPATCHER, CHIEF 1	ESC	05.02.01	203
DISPATCHER, CHIEF 2	ERS	05.02.01	181
DISPATCHER, CHIEF, SERVICE OR WORK	ESR	07.04.05	190
DISPATCHER, MAINTENANCE SERVICE	CES	07.04.05	237
DISPATCHER, MOTOR VEHICLE	ESC	07.05.01	205
DISPATCHER, OIL	ESR	05.02.01	190
DISPATCHER, OIL WELL SERVICES	CES	07.04.05	237
DISPATCHER, RADIO	CSE	07.04.05	233
DISPATCHER, RADIOACTIVE-WASTE-DISPOSAL	RES	06.01.01	53
DISPATCHER, READY-MIX PLANT	ESR	05.09.02	190
DISPATCHER, RELAY	ECR	07.04.05	206
DISPATCHER, SECURITY GUARD	ESA	04.02.02	199
DISPATCHER, SERVICE	ECS	07.04.05	206
DISPATCHER, SERVICE OR WORK	ESR	07.04.05	190
DISPATCHER, SERVICE, CHIEF	ESR	07.04.05	190
DISPATCHER, SHIP PILOT	CES	07.04.05	237
DISPATCHER, TRAFFIC OR SYSTEM	SEC	07.04.05	176
DISPATCHER, TUGBOAT	ESC	07.04.05	204
DISPLAY DESIGNER	AES	01.02.03	166
DISPLAY MAKER	RSI	01.06.02	20
DISPLAY-SCREEN FABRICATOR	REC	06.04.19	96
DISPLAYER, MERCHANDISE	ARE	01.02.03	164
DISSOLVER OPERATOR	RES	06.02.11	65
DISTILLATION OPERATOR	RIE	06.02.18	6
DISTILLATION-OPERATOR HELPER	RES	06.04.40	77
DISTILLER	RES	06.02.11	65
DISTILLER	REC	06.04.11	88
DISTILLERY WORKER, GENERAL	REI	06.04.40	48
DISTILLING-DEPARTMENT SUPERVISOR	RES	06.02.01	53
DISTRESSER	RES	01.06.02	77
DISTRIBUTING CLERK	RES	07.07.02	65
DISTRIBUTION SUPERVISOR	ECS	05.09.01	207
DISTRIBUTION-ACCOUNTING CLERK	CRE	07.02.02	216

Figure 2. Sample page (p. 296) from the Dictionary of Holland Occupational Codes.

Investigative Occupations (Continued)

CODE: IER	ED
Chief Engineer (010.167-010)	6
Geographer, Physical (029.067-014)	6
Mathematician (020.067-014)	6
Pollution-Control Engineer (019.081-018)	6
Psychologist, Educational (045.067-010)	6
Seismologist (024.061-050)	6
Technical Director, Chemical Plant (008.167-010)	6
Engineer of System Development (003.167-026)	5
Geodetic Computer (018.167-014)	5
Manager, Land Surveying (018.167-022)	5
Navigator (196.167-014)	5
Project Engineer (019.167-014)	5
Sales Engineer, Agricultural Equipment (013.151-010)	5
Surveyor, Marine (018.167-046)	5
Systems Analyst, Electronic Data (012.167-066)	5

CODE: IEA	ED
Chemical-Laboratory Chief (022.161-010)	6
Director, Quality Control (012.167-014)	6
Superintendent, Water-And-Sewer Systems (184.161-014)	6
Land Surveyor (018.167-018)	5
Medical Technologist, Chief (078.161-010)	5

CODE: IES	ED
Allergist-Immunologist (070.107-010)	6
Metrologist (012.067-010)	6
Safety Manager (012.167-058)	6
Sociologist (054.067-014)	6
Appraiser (188.167-010)	5
Electronics-Test Engineer (003.061-042)	5
Job Analyst (166.267-018)	5
Nurse, Supervisor, Occupational Health Nursing (075.137-010)	5
Occupational Analyst (166.067-010)	5
Public Health Service Officer (187.117-050)	5
Pharmacist (074.161-010)	5

CODE: IEC	ED
Highway-Administrative Engineer (005.167-022)	6
Photogrammetric Engineer (018.167-026)	6
Fire-Protection Engineer (012.167-026)	5
Programmer, Information System (020.187-010)	5
Tissue Technologist (078.361-030)	5

CODE: ICR	ED
Chief Drafter (007.261-010)	5
Cytotechnologist (078.281-010)	5
Management Analyst (161.167-010)	5
Programmer, Process Control (020.187-014)	5

CODE: IRA	ED
Surgeon (070.101-094)	6
Veterinarian, Poultry (073.101-014)	5

CODE: IRS	ED
Aeronautical Engineer (002.061-014)	6
Agronomist (040.061-010)	6

CODE: IRS (cont.)	ED
Anesthesiologist (070.101-010)	6
Animal Breeder (041.061-014)	6
Animal Scientist (040.061-014)	6
Biochemist (041.061-026)	6
Botanist (041.061-038)	6
Cardiologist (070.101-014)	6
Ceramic Engineer (006.061-014)	6
Dairy Technologist (040.061-022)	6
Entomologist (041.061-046)	6
Fiber Technologist (040.061-026)	6
Forest Ecologist (040.061-030)	6
Geneticist (041.061-050)	6
Geophysicist (024.061-030)	6
Parasitologist (041.061-070)	6
Pediatrician (070.101-066)	6
Plant Breeder (041.061-082)	6
Plant Pathologist (041.061-086)	6
Poultry Scientist (040.061-042)	6
Psychologist, Experimental (045.061-018)	6
Radiologist (070.101-090)	6
Range Manager (040.061-046)	6
Soil Scientist (040.061-058)	6
Wood Technologist (040.061-062)	6
Air Analyst (012.261-010)	5
Chemical Research Engineer (008.061-022)	5
Chemical-Laboratory Technician (022.261-010)	5
Electrical Engineer (003.061-010)	5
Hydraulic Engineer (005.061-018)	5
Meteorologist (025.062-010)	5
Veterinarian (073.101-010)	5
Cloth Tester (029.381-010)	4
Laboratory Assistant (029.381-014)	4
Respiratory Therapist (079.361-010)	4
Scientific Helper (199.364-014)	4

CODE: IRE	ED
Aeronautical-Research Engineer (002.061-026)	6
Anthropologist (055.067-010)	6
Aquatic Biologist (041.061-022)	6
Archeologist (055.067-018)	6
Architect, Marine (001.061-014)	6
Astronomer (021.067-010)	6
Biomedical Engineer (019.061-010)	6
Biophysicist (041.061-034)	6
Chemical Engineer (008.061-018)	6
Chemist (022.061-010)	6
Chemist, Food (022.061-014)	6
Computer-Applications Engineer (020.062-010)	6
Dairy Scientist (040.061-018)	6
Electrical Engineer, Power System (003.167-018)	6
Environmental Analyst (029.081-010)	6
Ethnologist (055.067-022)	6
Geographer (029.067-010)	6
Geologist (024.061-018)	6
Hydrologist (024.061-034)	6
Marine Engineer (014.061-014)	6
Metallurgist, Physical (011.061-022)	6
Nuclear Engineer (015.061-014)	6
Operations-Research Analyst (020.067-018)	6
Pathologist (070.061-010)	6
Periodontist (072.101-030)	6

Figure 3. Sample page (p. 6) from The Occupational Finder.

The application of Holland's classification to military jobs provides a severe test of the classification scheme because most military jobs fall in a single category: Realistic. These occupations require technical, electronic, or mechanical skills and/or physical agility and strength. Nevertheless, some evidence supports the expectation that the subcategories in the scheme can distinguish occupations within the Realistic category.

For example, in a comprehensive investigation of the work histories of 973 men aged from 30 to 39, the application of the classification indicated that 78.6 percent of 5,812 job transactions for 757 men are within the same major categories. Of special importance, in the Realistic category (where the sample N was large enough to do the analyses), the two- and three-letter codes for a man's occupation predicted the code of his occupation 5 and 10 years later. These results were statistically significant and moderately efficient; the percentage of "hits" ranged from 38.8 to 46.7 (Holland, Sorensen, Clark, Nafziger, & Blum, 1973). Tables 1 and 2 show these results.

Table 1

Predictive Value of Second Letter in Classification Code for Realistic Occupations Only

Classification Code	Occupational Category					
	RI	RS	RE	RC	Other	Total
5 years later						
RI	130	26	5	16	43	220
RS	67	110	4	35	44	260
RE	5	4	2	3	10	24
RC	11	11	2	15	7	46
10 years later						
RI	119	25	4	16	53	217
RS	104	93	11	43	48	299
RE	9	1	4	2	11	27
RC	17	7	2	14	10	50

Notes. Abbreviations: R = realistic, I = investigative, S = social, E = enterprising, and C = conventional.

From "Applying an occupational classification to a representative sample of work histories" by J. L. Holland, A. B. Sorensen, J. P. Clark, D. H. Nafziger, and Z. D. Blum, 1973, Journal of Applied Psychology, 59, p. 37. Copyright 1973 by American Psychological Association. Reprinted by permission.

Table 2

Predictive Value of Third Letter in Classification Code for Codes of Realistic-Investigative Only

Classification Code	Occupational Category				
	RIS	RIE	RIC	Other	Total
5 years later					
RIS	8	3	2	12	25
RIE	4	65	13	53	135
RIC	2	10	23	25	60
10 years later					
RIS	6	4	4	12	26
RIE	4	58	11	61	134
RIC	1	9	22	25	57

Notes. Abbreviations: R = realistic, I = investigative, S = social, E = enterprising, and C = conventional.

From "Applying an occupational classification to a representative sample of work histories" by J. L. Holland, A. B. Sorensen, J. P. Clark, D. H. Nafziger, and Z. D. Blum, 1973, Journal of Applied Psychology, 59, p. 37. Copyright 1973 by American Psychological Association. Reprinted by permission.

APPROACH

Information on Army and Navy occupations was collected from a variety of sources, each of which contains an abundance of information on occupations and occupational groups. Readers should refer to the originals for further information. Sources include the following:

1. Enlisted Career Management Fields and Military Occupational Specialties (AR 611-201; Department of the Army, 1985), which is used by the Army in classifying recruits.

2. Dictionary of Occupational Titles (DOT; Department of Labor, 1977), which contains information on over 12,000 occupational titles.

3. Military Occupational and Training Data (MOTD; Office of the Assistant Secretary of Defense, 1985), which resulted from a joint-service effort to cross-classify military and civilian jobs.

4. Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards. Section II. Navy Enlisted Classifications (Department of the Navy, 1986), which is used by Navy in recruit classification.

5. Navy Classifier's Rating Fact Sheet (Department of the Navy, undated), which is also used in recruit classification.

Information in these sources was related to information contained in the DHOC either directly or through expert judgment.

RESULTS AND DISCUSSION

An overall picture of the results for entry-level jobs is provided by Figure 4. According to this preliminary classification effort, over half the entry-level jobs in both the Army and Navy are Realistic (involve concrete, practical work with machines, tools, or materials), with Investigative (analytic problem-solving) and Social (facilitative work with people) as the next most common primary Holland classifications.

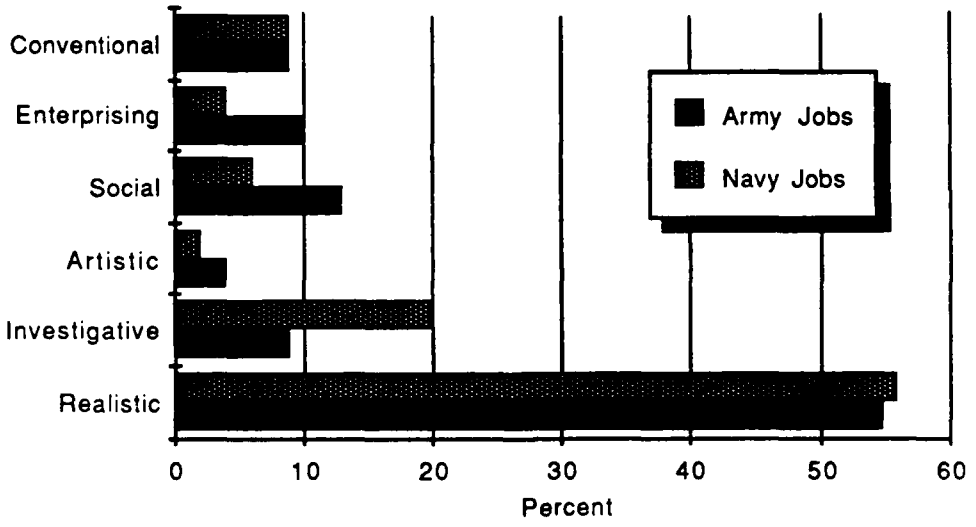


Figure 4. Holland categories of entry-level jobs.

Army Occupations

Classification of Army Enlisted occupations (entry and non-entry) was accomplished by reviewing the information in Enlisted Career Management Fields and Military Occupational Specialties (ECMF/MOS; Department of the Army, 1985). Each MOS was assigned a three-letter Holland code by reviewing the Army job descriptions, the related DOT code, and the DHOC, which empirically translates all civilian occupations and many military occupations into Holland codes. Appendix A lists MOS titles with their preliminarily three-letter Holland occupational code.

Although a few MOSs were equivalent to DOT codes and therefore explicitly related to a Holland code via the DHOC, the assignment of most codes required judgment. This process was guided by a review of "related DOT occupations," according to the ECMF/MOS and by a review of occupations assigned the same Holland code in the DHOC.

The Army entry-level enlisted occupations were also assigned Holland occupational codes by reviewing the MOTD (Department of Defense, 1985). These 129 entry occupations and their Holland codes are contained in Appendix B. The classifications for those 129 occupations were the same as those previously assigned through expert judgment.

Navy Occupations

The classification of 96 Navy entry-level occupations was accomplished by reviewing the Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards. Section II. Navy Enlisted Classifications (Department of the Navy, 1986) and the Classifier's Rating Fact Sheets. Each rating was assigned a three-letter code following the same procedures used for coding Army MOSs. The Navy entry-level occupations and their Holland codes are listed in Appendix C.

Occupational Distributions

The distributions of Army and Navy entry-level enlisted occupations according to Holland codes is presented in Table 3 in order of predominance. Figure 4 shows the percentages of Army and Navy entry-level jobs in each Holland category. The distribution of all Army enlisted occupations is presented in Appendix D. These distributions are arranged following the hexagonal model main groups in RIASEC order and subgroups of RIS, RIE, REI, RES, REC, and so on (see Holland, 1985a, page 123, for a detailed explanation).

The occupational distributions of military jobs have a number of interpretations. The most obvious is that recruits with Realistic interests are likely to find the military compatible, but recruits with Investigative, Artistic, Social, Enterprising, and Conventional interests have fewer possibilities. Recruits with Artistic interests may find the usual military jobs a particularly poor fit. Among the subcategories, the RIs RSs, REs, RCs and IRs would be expected to find the military environment most compatible. Figure 5 indicates the availability of different types of Realistic Army jobs.

Army and Navy entry-level jobs are similar to the occupational groups of skilled tradesmen created by Clark (1961), Clark and Campbell (1965), and Norman (1960) for Navy and civilian occupations. The scales for Mechanical, Health Service, Office Work, Electronics, Food Service, Carpentry, and Outdoors from the Minnesota Vocational Interest Inventory also appear to correspond to entry-level military occupations (see Clark & Campbell, 1965).

A major caveat is in order. The Holland coding of military occupations as accomplished here is predicated on the supposed similarity of military and civilian occupations. That is, a welder is a welder, etc. To the degree the same-titled military and civilian occupations are dissimilar, any occupational classification system, other than one unique to the military, should be used with caution. Particular attention will have to be paid to combat arms occupations in this regard.

Nevertheless, current thinking regards the best approach to the problem of developing military occupational exploration and VG systems as one that considers most military and civilian jobs (qua job) as identical, while addressing the unique military factors separately (Baker, 1987). In that light, the Holland codes should prove sound. Their use should facilitate the elicitation of occupational preferences, focus occupational exploration, and enhance the VG provided during the enlistment process.

Table 3

Distributions of Army and Navy Entry-level Enlisted Occupations

Army (N = 129)		Navy (N = 96)	
Realistic = 55%		**Realistic = 56%**	
RIS	3	RIS	3
RIE	22	RIE	21
RSE	5	RIC	1
RSC	1	RSE	4
RSI	1	REI	11
REI	15	RES	10
RES	15	REC	1
REC	2	RCE	3
RCI	1		54
RCS	2		
RCE	4		
	71		
Social = 13%		**Social = 6%**	
SEC	3	SEC	1
SER	3	SER	1
SEI	2	SIA	2
SEA	1	SIR	1
SCR	1	SAI	1
SCI	1		6
SCE	2		
SRE	1		
SAE	1		
SAI	2		
	17		
Enterprising 10%		**Enterprising = 4%**	
ECS	2	ERS	1
ERI	1	EAS	1
ERS	2	ESC	1
ESC	2	ESR	1
ESR	3		4
ESI	2		
ESA	1		
	13		
Investigative = 9%		**Investigative = 20%**	
ISR	1	IRS	2
ISA	1	IRE	19
IER	2		21
IRS	1		
IRE	5		
IRC	1		
	11		
Conventional = 9%		**Conventional = 9%**	
CRS	3	CRS	1
CRE	1	CSE	2
CSE	8	CSR	1
	12	CES	2
		CER	1
		CEI	1
		CIE	1
			9
Artistic = 4%		**Artistic = 2%**	
ASE	1	AER	1
ASI	1	AEI	1
AES	3		2
	5		

The Holland codes assigned in this research should be reviewed by service-specific expert panels and compared to the codes derived directly from interest inventories. After a period of use, the usefulness of the Holland classifications for occupational exploration and vocational preference elicitation can be evaluated.

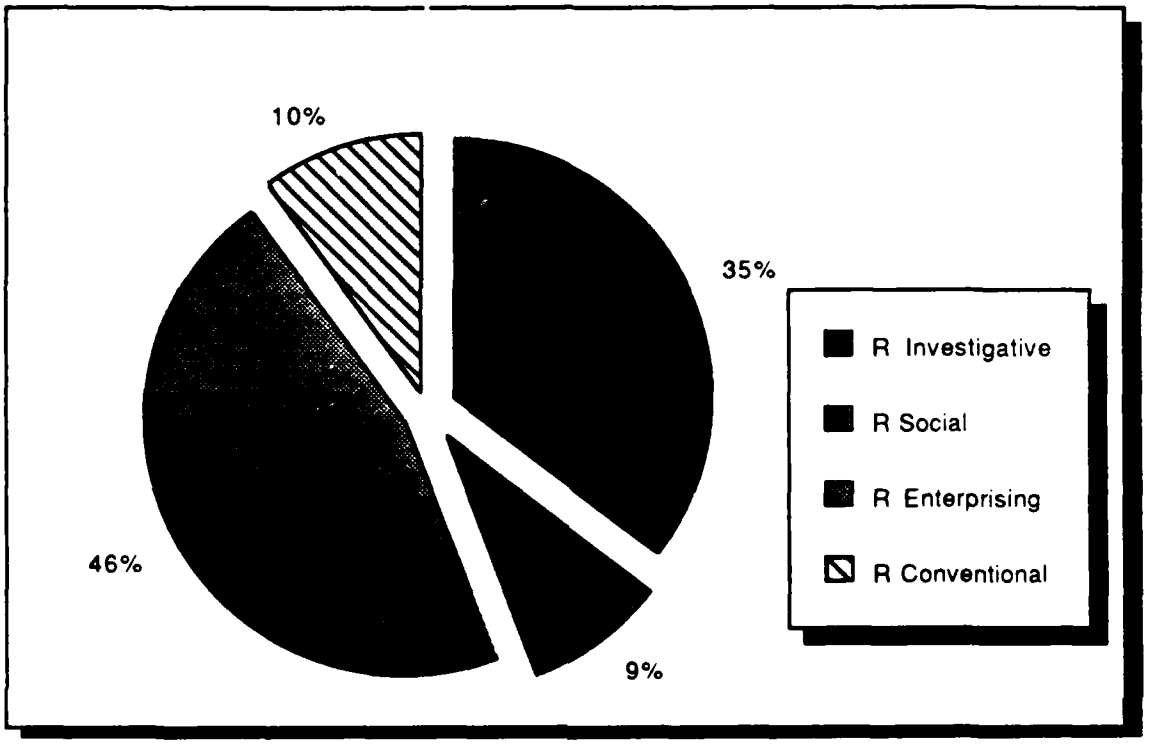


Figure 5. Breakdown of Realistic Army jobs by their second Holland code.

REFERENCES

Alley, W. E. (1978, October). Vocational Interest-Career Examination: Use and application in counseling and job placement. (AFHRL-TR-78-62) Brooks Air Force Base, TX: Air Force Human Resources Laboratory, Personnel Research Division.

Baker, H. G. (1983a). Navy Personnel Accessioning System (NPAS): II. Summary of research and development efforts and products (NPRDC SR 83-35). San Diego: Navy Personnel Research and Development Center.

Baker, H. G. (1983b). A person-job matching (PJM) system for Navy recruiting: Background and needs assessment (NPRDC TN 83-7). San Diego: Navy Personnel Research and Development Center.

Baker, H. G. (1983c, December). The youthful military job applicant: Perspective on the ante-career crisis. Paper presented at the 77th annual convention of the American Vocational Association, Anaheim, CA.

Baker, H. G. (1985). Antecareer crisis: Military recruiting and the youthful job applicant. Armed Forces and Society, 11, 565-580.

Baker, H. G. (in press). Designing a vocational guidance system for military recruiting: Problems and prospects. II. Theoretical and methodological considerations. San Diego: Navy Personnel Research and Development Center.

Baker, H. G., Rafacz, B. A., & Sands, W. A. (1983, May). Navy Personnel Accessioning System (NPAS): III. Development of a microcomputer demonstration system (NPRDC Spec. Rep. 83-36). San Diego: Navy Personnel Research and Development Center. (AD-A129 319)

Barrett, G. V., & Dambrot, F. H. (1975, August). Final report: Field and laboratory studies for increasing the intrinsic reward value in Navy jobs and careers (ONR tech. Rep. 8). Alexandria, VA: Office of Naval Research.

Bowers, D. G. (1975, June). Navy manpower: Values, practices, and human resources requirements. Ann Arbor: University of Michigan, Center for Research on the Utilization of Scientific Knowledge, Institute for Social Research.

Clark, K. E. (1955). The use of interest measures with naval enlisted personnel. Minneapolis: University of Minnesota, Department of Psychology.

Clark, K. E. (1961). Vocational interests of non-professional men. Minneapolis: University of Minnesota Press.

Clark, K. E., & Campbell, D. P. (1965). Manual for Minnesota Vocational Interest Inventory. New York: Psychological Corporation.

Claudy, J. G., & Caylor, J. S. (1981). Development of the Army Research Institute Interest Survey (ARIIS) (Final report) (AIR-80401-12/81-FR). Palo Alto, CA: American Institutes for Research.

Department of the Army. (1985, February). Enlisted career management fields and military occupational specialities (AR-611201). Washington, DC: Author.

Department of Defense. (1985). Military occupation and training data. Arlington, VA: Defense Manpower Data Center.

Department of Labor. (1977). Dictionary of occupational titles. Washington, DC: Government Printing Office.

Department of Labor. (1979). Guide to occupational exploration. Washington, DC: Government Printing Office.

Department of the Navy. (undated). Classifier rating fact sheets. Washington, DC: Chief of Naval Operations, OP-01.

Department of the Navy. (1986, January). Manual of Navy enlisted manpower and personnel classifications and occupational standards, Section II. Navy enlisted classifications. Washington, DC: Author.

Edwards, J. O. (1978, October). Comparative analyses of enlisted job satisfaction as measured by the Occupational Attitude Inventory (AFHRL Tech. Rep. 78-61). Brooks Air Force Base, TX: Air Force Human Resources Laboratory, Occupation and Manpower Research Division.

Ellis, R. T., & Baker, H. G. (1986, August). Recent developments in computerized military occupational information and guidance systems. Paper presented at the annual convention of the American Psychological Association, Washington, DC.

Employment and Immigration. (1973). Holland codes for C.C.D.O. Occupational and career analysis and development. Ottawa, Canada: Author.

Forer, B. R. (1951). Personality dynamics and occupational choice. Paper presented at the American Psychological Association meetings, Chicago, IL.

Gottfredson, G. D., Holland, J. L., & Ogawa, D. K. (1982). Dictionary of Holland occupational codes. Palo Alto: Consulting Psychologists Press.

Gould, R. B. (1978, October). Air Force Occupational Attitude Inventory Development (AFHRL Interim Tech. Rep. 78-60). Brooks Air Force Base, TX: Air Force Human Resources Laboratory, Occupation and Manpower Research Division.

Hoehn, A. J., Wilson, T. R., & Richards, J. A. (1972, March). Recruits' military preferences and their accommodation by the military services (AFHRL Tech. Rep. 72-19). Brooks Air Force Base, TX: Air Force Human Resources Laboratory.

Holland, J. L. (1978). Occupations finder. Palo Alto: Consulting Psychologists Press.

Holland, J. L. (1979). Professional manual for the Self-Directed Search. Palo Alto: Consulting Psychologists Press.

Holland, J. L. (1985a). Making vocational choices: A theory of vocational personalities and work environments. Englewood Cliffs, NJ: Prentice-Hall.

Holland, J. L. (1985b). Occupations finder. Odessa, FL: Psychological Assessment Resources.

Holland, J. L., & Holland, J. E. (1977). Vocational indecision: More evidence and speculation. Journal of Counseling Psychology, 24, 404-414.

Holland, J. L., Sorensen, A. B., Clark, J. P., Nafziger, D. H., & Blum, Z. D. (1973). Applying an occupational classification to a representative sample of work histories. Journal of Applied Psychology, 58, 34-41.

Norman, W. T. (1960). A spatial analysis of an interest domain. Educational and Psychological Measurement, 20, 347-361.

Sands, W. A. (1980, October). Automated guidance for enlisted Navy applicants (AGENA) system. Proceedings of the 22nd Annual Conference of the Military Testing Association. Toronto: Canadian Forces Personnel Applied Research Unit.

Sands, W. A. (1981). The Navy personnel accessioning system. Proceedings of the 23rd Annual Conference of the Military Testing Association. Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Thomas, P. J. (1977, March). Why women enlist: The Navy as an occupational choice (NPRDC Tech. Rep. 77-20). San Diego: Navy Personnel Research and Development Center. (AD-A037 340)

Weinberger, C. W. (1982). Military manpower task force: A report to the President on the status and prospects of the All-Volunteer Force. Washington, DC: Military Manpower Task Force.

Yellen, T. M. I., & Foley, P. P. (1978, June). Navy vocational information system (Tech. Rep. 78-22). San Diego: Navy Personnel Research and Development Center. (AD-A055 805)

APPENDIX A

HOLLAND-CODED ARMY OCCUPATIONS

Table 1-4
Alphabetical list of MOS by title

Title	MOS	CMF
Accounting specialist	73D	71
Air defense artillery operations and intelligence assistant	16H	16
Air defense artillery short range gunnery crewman	16R	16
Air defense artillery short range missile crewman	16P	16
Administrative specialist	71L	71
Automatic digital message switch equipment repairer	34H	74
Automatic data processing maintenance supervisor	34Z	74
Aerial electronic warning defense equipment repairer	26K	26
Aerial photoactive sensor repairer	26F	26
~~Aerial sensor specialist (CY 19/G)(Reserve Forces)~~	~~47E~~	96
Aerial intelligence specialist	96H	96
Aerial surveillance sensor repairer	26E	26
AH 1 attack helicopter technical inspector	66Y	67
AH 64 attack helicopter repairer	67R	67
AH 64 attack helicopter technical inspector	66R	67
Airbrake repairer (Reserve Forces)	65E	64
Aircraft armaments technical inspector	66J	67
Aircraft components repair supervisor	68K	67
Aircraft electrician	68F	67
Aircraft fire control repairer	68J	67
Aircraft maintenance senior sergeant	67Z	67
Aircraft pneudraulics repairer	68H	67
Aircraft powerplant repairer	68B	67
Aircraft powertrain repairer	68D	67
Aircraft quality control supervisor	67W	67
Aircraft structural repairer	68G	67
Aircraft weapon systems repairer	68M	67
Air defense artillery senior sergeant	16Z	16
Air defense radar repairer	26H	23
Air traffic control tower operator	93H	93
Air traffic control radar controller	93J	93
Ammunition stock control and accounting specialist	55R	55
Ammunition supervisor	55Z	55
Ammunition inspector	55X	55
Ammunition specialist	55B	55
Animal care specialist	91T	91
ANT/SQ 73 air defense artillery command & control system operator/ repairer	25L	23
Area intelligence specialist	97C	96
Armament/fire control maintenance supervisor	45Z	63
Armor senior sergeant	19Z	19
Artillery repairer	45L	63
Atomic demolition munitions specialist	12E	12
Attack helicopter repairer	67Y	67
Audio television specialist	84F	84
Audiovisual equipment repairer	41E	84
Automatic test equipment repairer	35C	29
Avionic communication equipment repairer	35L	28
Avionic equipment maintenance supervisor	35P	28
Avionic mechanic	35K	28
Avionic navigation and flight control equipment repairer	35M	28
Avionic special equipment repairer	35R	28
Land combat/ air defense systems maintenance chief	27Z	27
Baritone or euphonium player	02C	97
Bassoon player	02K	97
Behavioral sciences specialist	91G	91
Biological sciences assistant	01H	91
Biomedical equipment specialist, basic	35G	91
Biomedical equipment specialist, advanced	35U	91
BRADLEY fighting vehicle system mechanic	63T	63
BRADLEY fighting vehicle system turret mechanic	45T	63
Brass group leader	02P	97
Bridge crewman	12C	12
Broadcast journalist	71R	84
Calibration specialist	35H	29
Cannon crewman	13B	13
Cannon fire direction specialist	13E	13
Cannon/missile senior sergeant	13Y	13
Card and tape writer (Reserve Forces)	74B	74
Cardiac specialist	91N	91
Cargo specialist	57H	64
Carpentry and masonry specialist	51B	51
Cartographer	81C	81
Cavalry scout	19D	19
Central office operations operator	72H	31
CHAPARRAL/REDEYE repairer	27G	27
CHAPARRAL system mechanic	24N	23
Chapel activities specialist	71M	71
Chemical laboratory specialist	92D	54
Chemical senior sergeant	54Z	54
Clarinet player	02J	97
Club manager	00J	71
College trainee	09C	—
Combat area surveillance radar repairer	26C	29
Combat engineer	12B	12
Combat engineering senior sergeant	12Z	12
Combat signaler	31K	31
Command sergeant major	00Z	—
Commissioned officer candidate	09S	—
Communications-electronics maintenance chief	32Z	29
Communications-electronics operations chief	31Z	31
Computer/machine operator	74D	74
Concrete and asphalt equipment operator	62H	51
Construction engineering supervisor	51H	51
Construction equipment repairer	62B	63
Construction equipment supervisor	62N	51
Construction surveyor	82B	51
Coronet or trumpet player	02B	97
Correctional specialist	95C	95
Counterintelligence agent	97B	96
Court reporter	71E	71
Crane operator	62F	51
Cytology specialist	92E	91
Data communications switching center specialist	72G	31
Data processing NCO	74Z	74
Decentralized automated service support computer repairer	34C	74
Defense acquisition radar operator	16J	16
Defense acquisition radar mechanic	24P	23
Dental laboratory specialist	42D	91
Dental specialist	91E	91
Dial/manual central office repairer	36H	29
Diver	00B	51
Digital subscriber terminal equipment repairer	34F	74

Electronic switching systems repairer	36L	29 IRE
Engineer tracked vehicle crewman	12F	12 REC
Enlisted band leader	02Z	97 ASI
Ear nose throat specialist	91U	91 SCR
Environmental health specialist	91S	91 SAE
Equipment records and parts specialist	76C	76 REI
Electronic Warfare/ Intercept Strategic System Analyst and Command and Control Subsystem Repairer	33M	33 IRE
Electronic Warfare/ Intercept Strategic Receiving Subsystems Repairer	33P	33 IRE
Electronic Warfare/ Intercept Strategic Processing and Storage Subsystems Repairer	33Q	33 IRE
Electronic Warfare/ Intercept Aviation System Repairer	33R	33 REI
Electronic Warfare/ Intercept Tactical System Repairer	33T	33 REI
Electronic Warfare/ Intercept Systems Maintenance Supervisor	33Z	33 IRE
Electronic warfare/signal intelligence analyst	98C	98 AER
Electronic warfare/signal intelligence chief	98Z	98 AEI
Electronic warfare/signal intelligence emitter identifier/locator	05D	98 RCI
Electronic warfare/signal intelligence morse interceptor	05H	98 RCE
Electronic warfare/signal intelligence noncommunications interceptor	98J	98 RCE
Electronic warfare/signal intelligence non-morse interceptor	05K	98 RCE
Electronic warfare/signal intelligence voice interceptor	98G	98 ASE
Executive administrative assistant	71C	71 ESC
Explosive ordnance disposal specialist	55D	55 ERC
Eye specialist	91Y	91 SCR
Faboc repair specialist	43M	76 RCE
Field artillery computer repairer	34Y	74 IRE
FA digital systems repairer	34L	74 IRE
Field artillery firefinder radar operator	13R	13 ERI
Field artillery senior sergeant	13Z	13 ERS
Field artillery meteorological crewmember	93F	13 RIE
Field artillery radar crewmember	17B	13 REI
Field artillery surveyor	82C	13 IEA
Field artillery target acquisition senior sergeant	13W	13 ERS
Field artillery target acquisition specialist	17C	13 REC
Field general communications security repairer	31S	29 IRE
Field radio repairer	31E	29 REI
Field systems communications security repairer	31T	29 IRE
Fighting vehicle infantryman	11M	11 REC
Finance senior sergeant	73Z	71 CES
Finance specialist	73C	71 CES
Fire control instrument repairer	41C	63 RIE
Firefighter	51M	51 RST
Fire support specialist	13F	13 REC
Fixed ciphony repairer	32F	29 IRE
Fixed cryptographic equipment repairer	32G	29 IRE
Fixed station radio repairer	32H	29 REI
Flight operations coordinator	93P	93 ESI
Flute or piccolo player	02G	97 ASI
Food service specialist	94B	94 ESR
Forward area alerting radar repairer	27N	27 IRE
French horn player	02D	97 ASI
Fuel and electrical systems repairer	63G	63 IRE
General construction equipment operator	62J	51 REC
General engineering supervisor	51Z	51 ERS
Graves registration specialist	57F	76 ESR
Ground controlled approach radar repairer	26D	28 IRE
Ground surveillance systems operator	96R	96 REC
Guitar player	02T	97 ASI
HAWK fire control crew member	16E	16 RSE
HAWK missile crewmember	16D	16 RSE
Health physics specialist	91X	91 RIS
Heavy antiarmor weapons infantryman	11H	11 RSE
Heavy construction equipment operator	62E	51 REC
Heavy lift helicopter repairer	67X	67 RIE
Heavy lift helicopter technical inspector	66X	67 RIE
Heavy wheel vehicle mechanic	63S	63 REC
HERCULES electronics mechanic	24U	23 IRE
HERCULES fire control crewmember	16C	16 RCE
HERCULES missile crewmember	16B	16 RCE
Hospital food service specialist	94F	94 RSE
IBM 360 repairer	34K	74 IRE
Illustrator	81E	84 AE
Imagery analyst	96D	96 RIE
Improved HAWK continuous wave radar repairer	24K	27 RIE
Improved HAWK fire control mechanic	24E	23 RIE
Improved HAWK fire control repairer	24H	27 RIE
Improved HAWK firing section mechanic	24C	23 RIE
Improved HAWK information coordination central mechanic	24G	23 IRE
Improved HAWK maintenance chief	24V	23 IE
Improved HAWK master mechanic	24R	23 IE
Improved HAWK launcher/ mechanical systems repairer	24L	27 RIE
Improved HAWK pulse radar repairer	24J	27 RIE
Indirect fire infantryman	11C	11 RES
Industrial gas production specialist (Reserve Forces)	53B	51 RCE
Infantryman	11B	11 RE
Intelligence analyst	96B	96 AE
Intelligence senior sergeant	96Z	96 AE
Interior electrician	51R	51 RIE
[illegible]	96C	96
Journalist	71C	84 AS
LANCE [illegible] /MLRS sergeant	15D	13 RCE
LANCE systems repairer	27L	27 RIE
Land combat support system test specialist/ LANCE repairer	27B	27 RIE
Laundry and bath specialist	57E	76 REI
Legal [illegible] specialist	71D	71 SEC
Light air defense artillery crewman (Reserve Forces)	16F	16 REC
Light wheel vehicle mechanic	63B	63 RIE
Locomotive electrician (Reserve Forces)	65F	64 RIE
Locomotive operator (Reserve Forces)	65H	64 RE
Locomotive repairer (Reserve Forces)	65B	64 RIE
Machinist	44E	63 RIE
MANPADS crewmember	16S	16 RSE
Marine senior sergeant	61Z	64 RE
Material control and accounting specialist	76P	76 CSE
Material storage and handling specialist	76V	76 RE
Material quality specialist	51B	51 IER
Mechanical maintenance supervisor	63Z	63 RE

Medical laboratory specialist	92B	91
Medical NCO	91B	91
Medical specialist	91A	91
Medical supply specialist	76J	76
Medium helicopter repairer	67U	67
Medium helicopter technical inspector	66U	67
Metal worker	44B	63
Meteorological observer	93E	93
Military police	95B	95
Multiple launch rocket system/LANCE operation/fire direction specialist	15J	13
Multiple launch rocket system repairer	27M	27
Multiple launch rocket system crewmember	13M	13
Motion picture specialist	84C	84
Motor transport operator	64C	64
Multichannel communications equipment operator	31M	31
M1 ABRAMS armor crewman	19K	19
M1 ABRAMS tank turret mechanic	45E	63
M1 ABRAMS tank systems mechanic	63E	63
M48 M60 armor crewman	19E	19
M60A1/A3 tank system mechanic	63N	63
M60 tank turret mechanic	45N	63
Nuclear biological chemical specialist	54E	54
NIKE-HERCULES fire control mechanic	24Q	27
NIKE-HERCULES missile launcher repairer	22N	27
NIKE high power radar simulator repairer	23U	27
NIKE maintenance chief	23W	27
NIKE test equipment repairer	22L	27
NIKE track radar repairer	23K	23
Nuclear medicine specialist	91W	91
Nuclear weapons maintenance specialist	55G	55
Oboe player	02H	97
Observation airplane repairer	67H	67
Observation airplane technical inspector	66H	67
Observation/scout helicopter repairer	67V	67
Observation/scout helicopter technical inspector	66V	67
Occupational therapy specialist	91L	91
Office machine repairer	41J	63
Operating room specialist	91D	91
Optical laboratory specialist	42E	91
Orthopedic specialist	91H	91
Orthotic specialist	42C	91
Parachute rigger	43E	76
Patent administration specialist	71G	91
PATRIOT missile crewmember	16T	16
PATRIOT Operations and system mechanic	24T	23
Percussion group leader	02R	97
Percussion player	02M	97
PERSHING electrical-mechanical repairer	46N	27
PERSHING electronics materiel specialist	21G	27
PERSHING electronics repairer	21L	27
PERSHING missile crewmember	15E	13
Personnel actions specialist	75E	71
Personnel administration specialist	75B	71
Personnel information system management specialist	75F	71
Personnel management specialist	75C	71
Personnel records specialist	75D	71
Personnel sergeant	75Z	71
Petroleum laboratory specialist	92C	92
Petroleum supply specialist	76W	92
Pharmacy specialist	91Q	9
Photo and layout specialist	83E	81
Photolithographer	83F	81
Physical activity specialist	03C	71
Physical therapy specialist	91F	91
Piano player	02N	97
Plumber	51K	51
Power generation equipment repairer	52D	63
Practical nurse	91C	91
Prime power production specialist	52E	51
Psychiatric specialist	91F	91
Psychological operations specialist	96F	96
Programmer/analyst	74F	74
Public affairs/audiovisual chief	84Z	84
Quarrying specialist	62G	51
Quartermaster and chemical equipment repairer	63J	63
Radio/television systems specialist	26T	84
Railway car repairer (Reserve Forces)	65D	64
Railway movement coordinator (Reserve Forces)	65K	64
Railway section repairer (Reserve Forces)	65G	64
Railway senior sergeant (Reserve Forces)	65Z	64
Recruiter (Reserve Forces)	00E	79
Recruiter/retention NCO	00R	79
Reenlistment NCO (Reserve Forces)	79D	79
Reserve Forces reporting code	09T	?
Respiratory specialist	91V	91
ROLAND crewmember	16G	16
ROLAND field maintenance test sets repairer	27D	27
ROLAND mechanic	24S	23
ROLAND repairer	27C	27
Satellite communications equipment repairer	26Y	29
Saxophone player	02L	97
Scout helicopter repairer (NISH)	67S	67
Scout helicopter technical inspector (NISH)	66S	67
Self-propelled field artillery turret mechanic	45D	63
Senior supply sergeant	76Z	76
SGT YORK air defense gun system crewmember	16L	16
SGT YORK air defense gun system mechanic	24W	29
SGT YORK air defense gun system radar electronics repairer	27P	27
SGT YORK air defense gun system test specialist	27Q	27
Signal security specialist	97G	96
Simultaneous membership program	09R	—
Single channel radio operator	31C	31
Small arms repairer	45B	63
Smoke operations specialist	54C	54
Special agent	95D	95
Special bandperson	02S	97
Special duty assignment	00D	—
Special electronic devices repairer	35E	29
Special Operations Weapons Sergeant	18B	18
Special Operations Engineer Sergeant	18C	18
Special Operations Medical Sergeant	18D	18
Special Operations Communications Sergeant	18E	18
Special Operations Intelligence Sergeant	18F	18
Special Operations Senior Sergeant	18Z	18
Station technical controller	32D	31
Still photographic specialist	84B	84

Strategic microwave systems repairer	26V	29 RSC
Strategic satellite microwave systems operator	26R	31 RIC
Structures specialist	51C	51 RSC
Subsistence supply specialist	76X	76 REI
Tactical fire operations specialist	13C	13 CSR
Tactical circuit controller	31N	31 SEC
Tactical communications systems operator/ mechanic	31V	31 REI
Tactical computer systems repairer	34T	74 IRE
Tactical fire control systems repairer	45G	63 RIE
Tactical microwave systems repairer	26L	29 REI
Tactical satellite/ microwave systems operator	26O	31 REI
Tactical transport helicopter repairer	67T	67 RES
Tactical transport helicopter technical inspector	66T	67 RES
Tank turret repairer	45K	63 RES
Technical drafting specialist	81B	51 RIE
Technical engineering supervisor	51T	51 IRS
Telecommunications center operator	72E	31 CSE
Teletypewriter repairer	31J	29 RES
Terrain analyst	81Q	81 RIE
Topographic engineering supervisor	81Z	81 CSE
Topographic instrument repair specialist	41B	81 RIE
Topographic surveyor	82D	81 EIR
TOW/DRAGON repairer	27E	27 RIE
Track vehicle repairer	63H	63 RSE
Track vehicle mechanic	63Y	63 RSE
Traffic management coordinator	71N	64 ESR
Train crew member (Reserve Forces)	65J	64 RSE
Transmission and distribution specialist	52G	51 RES
Transportation senior sergeant	64Z	64 ESR
Trombone player	02E	97 AST
Tuba player	02F	97 ASE
Turbine engine driven generator repairer	52F	63 RES
Television/radio broadcast operations chief	84T	84 SEI
Unit supply specialist	76Y	76 RCI
Utilities equipment repairer	52C	63 REI
Utility/cargo airplane repairer	67G	67 RES
Utility/cargo airplane technical inspector	66G	67 RES
Utility helicopter repairer	67N	67 RES
Utility helicopter technical inspector	66N	67 RES
Veterinary food inspection specialist	91R	91 RET
VULCAN repairer	27F	27 RIE
VULCAN system mechanic	24M	23 IRE
Warrant officer candidate	09W	—
Watercraft engineer	61C	64 REI
Watercraft operator	61B	64 REI
Water treatment and plumbing systems specialist	51N	92 RET
Wheel vehicle repairer	63W	63 REI
Wire systems installer	36C	31 RSE
Wire systems operator	36M	31 CSE
Woodwind group leader	02Q	97 AST
X-ray specialist	91P	91 RST

APPENDIX B

HOLLAND-CODED ARMY ENTRY-LEVEL OCCUPATIONS

Holland-Coded Army Entry-Level Occupations

1. Still Photographer RSE
2. Motion Picture Specialist AES
3. Interpreter ESA
4. Journalist ASE
5. Broadcaster ESR
6. Dental Specialist SAI
7. Medical Record Technician CSE
8. X-Ray Technician RSI
9. Practical Nurse SAI
10. Medical Lab Technician ISA
11. Orthotist RSE
12. Electrocardiograph Technician RCI
13. Optometric Assistant SCI
14. Emergency Medical Technician ESI
15. Operating Room Technician ISR
16. Orthopedic Assistant RCS
17. Recording Engineer RES
18. Drafter IRC
19. Surveyor, Marine IER
20. Cartographer RIE
21. Weather Observer RIE
22. Radar and Sonar Operator RIS
23. Air Traffic Controller SER
24. Radio Officer RCE
25. Radio Intelligence Operator RCE
26. Paralegal Assistant SEC
27. Computer Programmer CRS
28. Disaster or Damage Control Specialist ERS
29. Radiographer RIS
30. Store Manager ESR
31. Stock Clerk RSE
32. Computer Operator SCE
33. Secretary (Stenographer, Yeoman) CSE
34. Court Report (legal secretary) CSE
35. General Office Clerk CSE
36. Hotel Clerk ECS
37. Travel Clerk ESC
38. Personnel Specialist CSE
39. Accounting Clerk, Data Processing CRS
40. Payroll Clerk CRS
41. Command and Control Specialist CSE
42. Telegraphic-Typewriter Operator CSE
43. Postal Clerk ECS
44. Dispatcher ESC
45. Maintenance Data Analyst ERS
46. Airplane Dispatch Clerk SEC
47. Shipping and Receiving Clerk REC
48. Stock Clerk RCS
49. Data Entry Operator CSE
50. Fire Fighter RES

51. Special Agent ERI
52. Military Police SRE
53. Criminal Investigator ESI
54. Correction Officer SER
55. Cook RSE
56. Physical Therapy Assistant SCR
57. Occupational Therapy Assistant SCE
58. Barber SER
59. Automobile Mechanic RIE
60. Truck Mechanic RIE
61. Automobile Body Repairer RIE
62. Aircraft Mechanic RIE
63. Construction Equipment Mechanic REI
64. Marine Engine Mechanic RIE
65. Nuclear Powerplant Mechanic REI
66. Sonar and Radar Equipment Repairer IRE
67. Radio Mechanic IRE
68. Electronic Weapon System Repairer IRE
69. Computer Systems Technician IRE
70. Teletype Repairer IRE
71. Electronic Instrument Repairer RIE
72. Aircraft Electrician RIE
73. Electrical Product Repairer RCE
74. Telephone Maintenance Mechanic RIE
75. Wire Installer RIE
76. Heating/Cooling Mechanic RES
77. Instrument Mechanic RIE
78. Photographic Equipment Repairer RIE
79. Business Machine Mechanic RES
80. Crane Rigger RSC
81. Gunsmith RES
82. Deep Sea Diver RES
83. Cement Mason RES
84. Carpenter REI
85. Building Electrician REI
86. Plumber REI
87. Paving Equipment Operator RES
88. Structural-Steel Worker REI
89. Well Driller RIE
90. Blasting Specialist RIE
91. Machinist RIE
92. Shipfitter RIE
93. Sheet Metal Worker REI
94. Alteration Tailor RIE
95. Optician REI
96. Dental Laboratory Technician RFI
97. Water-Treatment Plant Operator REI
98. Power Plant Operator REI
99. Printer RIE
100. Film Developer RES
101. Compressed-Gas-Plant Worker RIE
102. Welder RES
103. Parachute Rigger RCE

104. Truck Driver RSE
105. Boat Operator RIE
106. Navigator CRE
107. Seaman RES
108. Ship Engineer RES
109. Flight Engineer RES
110. Heavy Equipment Operator REC
111. Stevedore RES
112. Petroleum Supply Specialist RIE
113. Air Crew Member REI
114. Artillery Crew Member REI
115. Infantryman RES
116. Special Forces REI
117. Tank Crew Member REI
118. Combat Engineer RES
119. Recruiting Specialist SEC
120. Food and Drug Inspector SAE
121. Computer System Analyst IER
122. Intelligence Specialist AES
123. Human Relations or Drug and Alcohol Counselor SER
124. Recreation Specialist SEI
125. Religious Program Specialist SEA
126. Vocational Instructor SEI
127. Respiratory Therapist IRS
128. Commercial Artist AES
129. Musician ASI

APPENDIX C

HOLLAND-CODED NAVY ENTRY-LEVEL OCCUPATIONS

Holland-Coded Entry-Level Occupations

	Navy Code		Holland Code
1.	AB	Aviation Boatswain's Mate	RES
2.	AC	Air Traffic Controller	SER
3.	AD	Aviation Machinist Mate	RIE
4.	AE	Aviation Electrician's Mate	RIS
5.	AG	Aerographer's Mate	IRS
6.	AK	Aviation Storekeeper	REC
7.	AM	Aviation Structural Mechanic	RES
8.	AO	Aviation Ordnanceman	REI
9.	AQ	Aviation Fire Control Technician	RIE
10.	AQ AE	Aviation FC Tech	IRE
11.	ASM	Aviation Support Equipment Technician	RSE
12.	AT	Aviation Electronics Technician	IRE
13.	AT AE	Aviation Electronics Technician	IRE
14.	AW	Aviation Anti-Submarine Warfare Operator	RIE
15.	AX	Aviation Anti-Submarine Warfare Technician	IRE
16.	AX AE	Aviation Anti-Submarine Warfare Technician	IRE
17.	AZ	Aviation Maintenance Administrationman	CRS
18.	BT	Boiler Technician	RSE
19.	BT AT	Boiler Technician	RIE
20.	BU	Builder	REI
21.	CE	Construction Electrician	RES
22.	CM	Construction Mechanic	RSE
23.	CTA	Cryptologic Technician, Administrative	CES
24.	CTI1	Cryptologic Technician, Interpretive	AEI
25.	CTMAE	Cryptologic Technician, Maintenance	IRE
26.	CTO	Cryptologic Technician, Operator	CER
27.	CTRT	Cryptologic Technician, Collection/Technical	CIE
28.	CTI2	Cryptologic Technician, Interpretive	AEI
29.	DK	Disbursing Clerk	CES
30.	DP	Data Processing Technician	CEI
31.	DS AEF	Data Systems Technician	IRE
32.	DT	Dental Technician	SIA
33.	EA	Engineering Aid	RIE
34.	EM	Electrician's Mate	RIS
35.	NF GEN	Nuclear Field	IRE
36.	EN	Engineman	REI
37.	GS AT	Gas Turbine Systems Technician	REI
38.	EO	Equipment Operator	RSE
39.	ET	Electronics Technician	IRE
40.	ET AE	Electronics Technician	IRE
41.	ET NF	Electronics Technician	IRE
42.	EW	Electronics Warfare Technician	RIE
43.	EW AE	Electronics Warfare Technician	IRE
44.	FC FT	Fire Control Technician	IRE
45.	FT AE	Fire Control Technician	IRE
46.	GM	Gunner's Mate	REI
47.	GMT	Gunner's Mate Technician	RIE
48.	HM	Hospital Corpsman	SIA

49.	HM AT	Hospital Corpsman	SIR
50.	HT	Hull Maintenance Technician	RIE
51.	HT AT	Hull Maintenance Technician	IRE
52.	IC	Interior Communications Electrician	RIS
53.	IC AT	Interior Communications Electrician	IRE
54.	IC NF	Interior Communications Electrician	RIS
55.	IM	Instrumentman	IRE
56	IS	Intelligence Specialist	ERS
57.	JO	Journalist	EAS
58.	ML	Molder	REI
59.	MM	Machinist's Mate	RIE
60.	MM NF	Machinist's Mate	RIE
61.	MN	Mineman	RIE
62.	MR	Machinery Repairman	RIE
63.	MS	Mess Management Specialist	ESR
64.	OM	Opticalman	RIC
65.	OS	Operations Specialist	CSR
66.	OTA	Ocean Systems Technician Analyst	IRS
67.	PC	Postal Clerk	CSE
68.	SWS AE	Strategic Weapons Systems Electronics (Undecided)	IRE
69.	PH	Photographer's Mate	RES
70.	PM	Patternmaker	RIE
71.	PN	Personnelman	SEC
72.	PR	Aircrew Survival Equipmentman	RCE
73.	QM	Quartermaster	RET
74.	RM	Radioman	RCE
75.	RM AE	Radioman	RIE
76.	SH	Ship's Serviceman	ESC
77.	SK	Storekeeper	ESC
78.	SM	Signalman	RCE
79.	STG AE	Sonar Technician, Surface	RIE
80.	STS AE	Sonar Technician, Submarine	RIE
81.	SW	Steelworker	REI
82.	TM	Torpedoman's Mate	RIE
83.	UT	Utilitiesman	REI
84.	YN	Yeoman	CSE
85.	UFTG AEF	Underwater Fire Control Technician, Gun Fire Control	RIE
86.	TMS	Torpedoman's Mate, Submarine	RIE
87.	STS	Sonar Technician, Submarine	RES
88.	STG	Sonar Technician, Surface	REI
89.	TMT	Torpedoman's Mate Technician	RES
90.	RP	Religious Program Specialist	SAI
91.	FS	Fireman Subfarer (Undecided)	RES
92.	SS	Seaman Subfarer (Undecided)	RES
93.	ASE	Aviation Support Equipment Technician	RIE
94	QMS	Quartermaster, Submarine	REI
95.	OTM AE	Oceans Systems Technician	RIE
96.	MM AT	Machinists Mate	RIE

APPENDIX D

ARMY ENLISTED OCCUPATIONS DISTRIBUTION

Table D-1

Army Enlisted Occupations Distribution

	f			f	
RIS	2		SEC	6	
RIE	78		SER	6	
RIC	2		SEI	1	
RSE	17		SCR	4	
RSC	4		SRE	7	
RSI	2		SRC	1	
REI	42		SIA	1	
RES	26		SIE	3	
REC	18		SIR	1	
RCI	4		SAE	1	
RCS	4		SAI	3	
RIE	15				
	214	57%		34	9%
ISR	3		ERI	1	
ISA	2		ERS	8	
IER	4		ERC	1	
IEA	1		EIS	1	
IRS	3		EIR	2	
IRE	40		ESC	3	
			ESR	8	
			ESI	1	
	53	14%		25	7%
ASE	3		CRI	2	
ASI	16		CRE	1	
AER	1		CSE	12	
AEI	6		CSR	3	
AES	3		CES	3	
	29	8%		21	6%

END

2-87

DTIC